

HQ Sixteen

by HANDI QUILTER®



User Manual

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Safety Section

Please note: Do not operate your HQ Sixteen™ quilting machine until you have completely read the information contained in this manual. Please keep all packaging and order information for warranty purposes.

1. Always unplug the HQ Sixteen™ from the electrical outlet when performing any maintenance, changing the needle, removing thread locks, or when left unattended.
2. Keep fingers away from all moving parts. Use caution around the needle or sharp external components.
3. Change the needle often. Do not use bent or dull needles.
4. Switch the power off when making any adjustments in the needle or bobbin area, such as threading the needle, installing the bobbin case, or when oiling or cleaning.
5. Never drop or insert foreign objects into any opening.
6. The HQ Sixteen™ should only be used indoors away from moisture.
7. The HQ Sixteen™ should not be stored or used in extreme temperatures.
8. Use the HQ Sixteen™ only for its intended use as described in this manual.
9. Use only attachments recommended by the manufacturer in this manual.
10. To disconnect from the wall outlet, push the switch to the off position, then remove the plug from outlet pulling from the plug, not the cord. Never operate the HQ Sixteen™ if the cord is damaged or not working correctly. If a mechanical or electrical problem is encountered, return the HQ Sixteen™ to the nearest authorized service center or the manufacturer for examination, repair, electrical or mechanical adjustment.
11. It is not recommended that the HQ Sixteen™ Quilting Machine be used with any home machine quilting frame other than those recommended or manufactured by Handi Quilter LLC.

Quick Facts

Description	Specification
Sewing Speed	Approximately 1,500 spm
Minimum Sewing Speed	150 spm
Needle Bar Stroke	35.3 mm
Sewing Foot Stroke/Lift	5 mm
Needle System	135x7 Standard 134 R Long Scarf
Needle Sizes	14/90 – 19/120
Lubricating Oil & Greases	Kluber Lubrication
Dimensions of Sewing Machine Throat	8.25" x 16.00"
Rate Voltage/Power Consumption	120 volts, 60 Hz 100 watts
Power Consumption of LED Lights	20 watts
Hook System	Custom Manufactured, Rotary, Large Bobbin
Bobbin Type	Class M
Motor Type	Brushless DC, Internal Encoding
Automatic Needle Positioning	Up and down, full stitch and half stitch

Disclaimer

Handi Quilter LLC and its Representatives are in no way legally responsible or liable for damage to the HQ Sixteen™ when used improperly or not in accordance with the guidelines stated in this manual or when used on Home Machine Quilting Frames not recommended by Handi Quilter LLC.

Home Machine Quilting Frame Recommendations

- › Handi Quilter Original Home Machine Quilting Frame
- › HQ II Home Machine Quilting Frame
- › HQ Portable Professional Home Machine Quilting Frame

Package Contents

Please keep your original box and packaging

Contents of Package

1. Bobbins (5 pieces)
2. Needle (135x5) size 16
3. Needle (135x5) size 18
4. Bobbin Case
5. Thread Mast
6. Oiler
7. Power Cord
8. Hex Wrench (2 – for needle clamp & handlebars)
9. Instructional DVD
10. Instruction Manual
11. HQ Sixteen™ Quilting Machine

Optional Accessories

1. Front Handles
2. Rear Handles
3. Laser Stylus and Clamp
4. Laser Stylus Post

HQ Sixteen™ Components

Front Side Diagram A

1. Thread Mast
2. Thread Guide A
3. Three Hole Thread Guide B
4. Thread Guide C
5. Tension Assembly
6. "Stirrup" Thread Guide D
7. Take Up Lever
8. Thread Guide E
9. Needle Bar Thread Guide
10. Needle
11. Front Casing/Frame
12. Hand Wheel
13. Menu Settings Display
14. Side Laser Stylus Post Hole

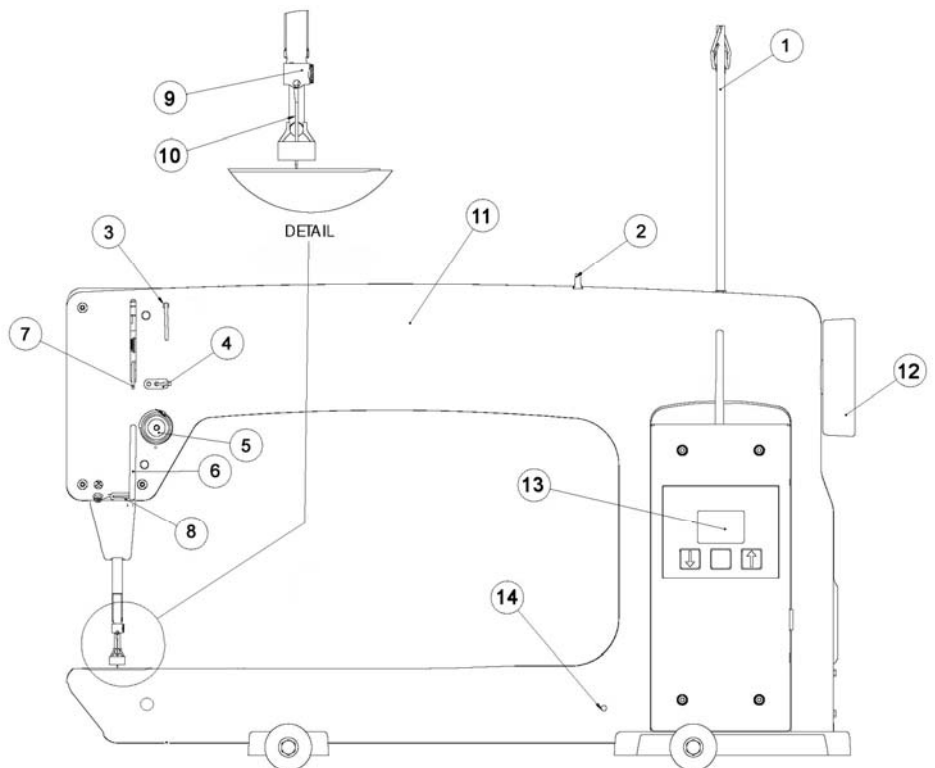


Diagram A

**Back Side
Diagram B**

- 15. Hopping Foot
- 16. Needle Bar
- 17. Presser Bar
- 18. Back Casing/Frame
- 19. Front Handle Serial Port Connector
- 20. Top Laser Stylus Post Hole
- 21. Front Threaded Handle Holes
- 22. Bobbin Assembly
- 23. Needle Plate
- 24. Front Wheel Base
- 25. Oval Position Guides
- 26. Rear Wheel Base
- 27. Wheels (4)

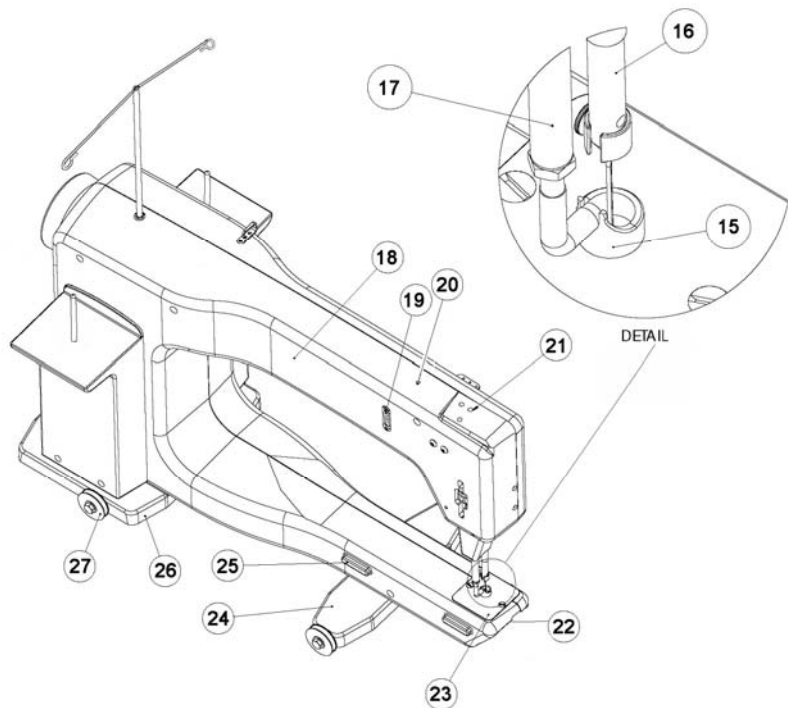


Diagram B

**Rear
Diagram C**

- 28. Spool Pin 1
- 29. Laser Stylus Power Connector
- 30. Front Electronic Control Pod
- 31. Serial Port for Stitch Regulator or Foot Control
- 32. Foot Pedal Connector
- 33. Rear Handle Bar Serial Port
- 34. Rear Threaded Handle Holes
- 35. Power Cord Connector
- 36. On/Off Switch
- 37. Back Power Pod
- 38. Spool Pin 2

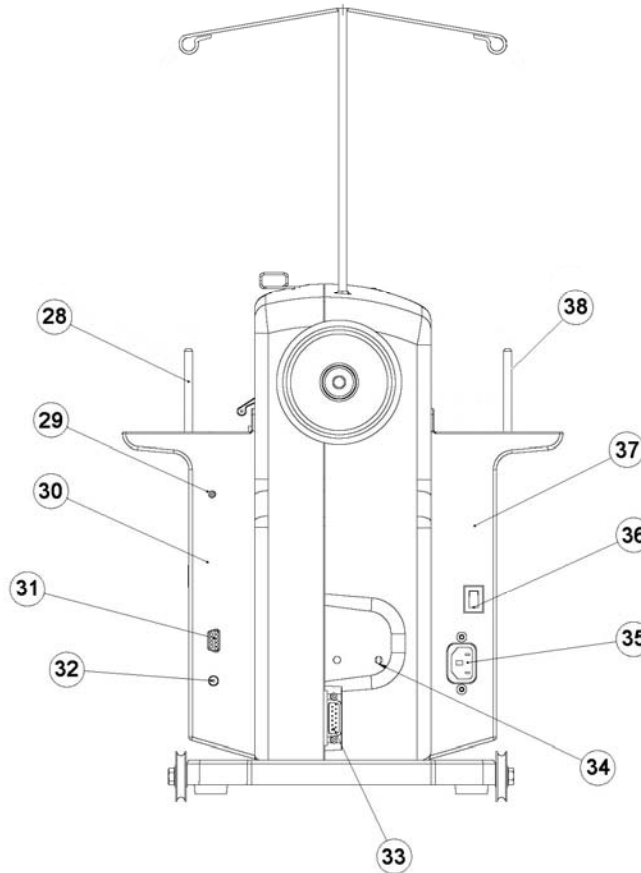


Diagram C

Note: A Handi Quilter “Welcome” DVD is included with your HQ Sixteen™ Machine. Review the DVD and these instructions to better understand how to setup and use the HQ Sixteen™.

HQ Sixteen™ Stitch Regulator Installation—For Stitch Regulated Machines Only (Skip to page 6 for non-stitch regulated machines.)

Directional Conventions: Orient yourself to the machine as if you were standing behind the machine facing the Hand Wheel; User Right and User Left, then Machine Front (Needle Side), Machine Rear (Hand wheel) (see Photo 1).



Photo 1

1. Place the carriage on the table rails ensuring that the Front Encoder Assembly will be toward the front of the machine (the needle side of the machine). The front side of the carriage has a longer distance from the end of the carriage to the cross bar. The back side of the carriage has a shorter distance from the end of the carriage to the cross bar. Be sure to place the carriage on the frame correctly (see Photo 2).

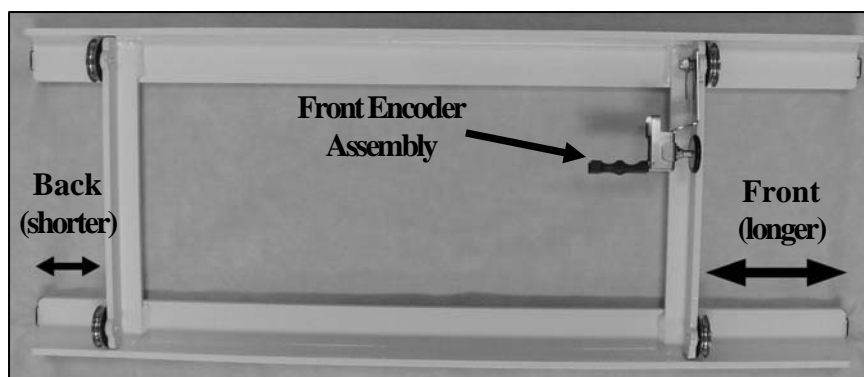


Photo 2

2. Place the machine on the carriage.
3. Plug the Ribbon cable into the Front Encoder Assembly. The ribbon cable has a red colored wire which goes on top.
4. The remaining length of cable comes back under the machine from the Rear Encoder Assembly, in front of the rear base, up and over the rear base, under the protruding display pod and connects into the 9 pin serial port of the machine (see Photo 3).



Photo 3

5. **REMEMBER** that if the machine is to be removed from the carriage, the cable must be disconnected from the Front Encoder Assembly on the carriage. The other two connectors on the cable should remain in place. Failure to unplug the cable when removing the machine from the carriage could result in damage to the cable, encoders, and carriage.

Installing Optional Front Handles

Caution: Unplug the HQ Sixteen™ from the electrical outlet. All power to the machine must be turned off when installing the front handles. Failure to do so can result in damage to the machine.

Important note: Care must be taken to not pinch the ribbon cable under the handle bar when it is tightened to the machine. Locate the two longest bolts and the appropriate Hex wrench. To install the handles, tilt the screen forward. Line up the two holes on top of the handles with the pre-drilled holes on top of the machine. Slide a bolt into each hole until it stops. Hand tighten, and then use the Hex wrench to securely fasten the handlebars to the machine (see Photo 4).



Photo 4

Once both bolts are in place, plug the ribbon connector into the serial port on the back casing of the machine (see diagram B, #19). Make sure the pins are lined up so they are not damaged when the plug is pushed in. Push the plug securely in place.

Installing Optional Rear Handles

Check that the HQ Sixteen™ is unplugged from the electrical outlet. All power to the machine must be turned off when installing the back handles. Failure to do so can result in damage to the machine.

The rear handle bar comes mounted with three screws to the “L” bracket. Line up the two holes in the “L” bracket with those on the rear of the machine. Slide the short bolts into holes until they stop. Hand tighten, and then use the Hex wrench to securely fasten the handle to the back of the machine.

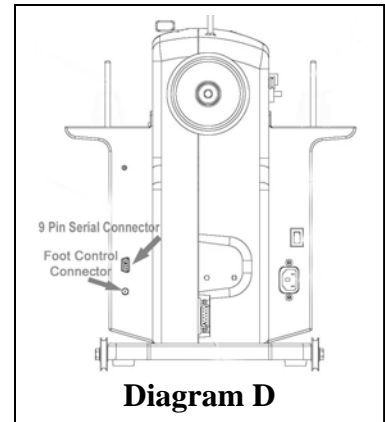
Once the two bolts are in place, plug the ribbon connector into the serial port underneath the rear handle (see diagram C, #33). Ensure the pins are lined up so they are not damaged when the plug is pushed in. Push the plug securely in place.

Note: After the handles have been completely installed and plugged in, test them by turning the HQ Sixteen™ on/off switch to “on”. The handlebars will run a self-test by briefly displaying their version during boot up and then the LED lights on the front handles will illuminate. After the boot up is completed, all three LCD displays (side, front handle and rear handle) will display the same menu. If nothing is displayed or if the lights don't illuminate, check that the handle bar cable on the side of the machine is plugged in securely, that your machine is turned on, and that the power cord is plugged into the machine as well as a power source.

FOR TRADITIONAL SIT-DOWN QUILTING MACHINES ONLY

Installing the Foot Controller

HQ foot control: Insert the foot control plug into the 9 pin serial connector on the side of the electronic control pod (see Diagram D).



Installing the Power Cord

Insert the cord into power connector on the rear of the machine. Plug the three-prong end into power source (see Photo 5).

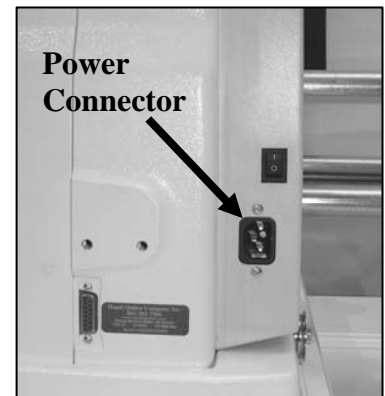


Photo 5

Inserting (or changing) the Needle

Check that all power is turned off.

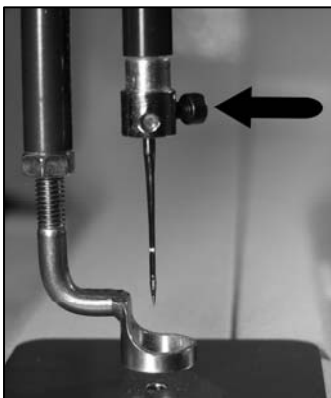
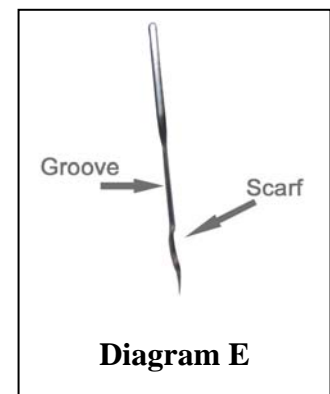


Photo 6

1. Move the needle bar to the highest position by turning the hand wheel or pressing the needle up/down control on the handles.
2. Loosen the needle bar clamp screw with the appropriate Hex wrench (see Photo 6).

3. With the scarf (small ground out section/dip on the back side of the needle just above the needle eye) facing toward the handwheel side of the machine, and the long groove down the front of the needle facing the bobbin case side (see diagram E), push the needle all the way up into the needle bar – until it can go no farther.



4. *Carefully* tighten the needle bar clamp screw. Over tightening the needle clamp screw will result in damaged threads stripping the hole. Stripped holes are not covered under warranty. Another side effect of damaged threads from over tightening is the needle may be very tight when inserted up into the needle bar. To avoid over tightening the screw, put the long end of the Hex wrench into the screw and finger tighten only.

Note: Changing the needle is recommended for each new quilt loaded on the machine or any time the needle becomes bent, dull or burred.

Important: Check the needle to confirm it is fully inserted. The needle bar has a stop/sight hole above the needle bar clamp screw – make sure the needle is touching the top of the stop/sight hole. If it is not, the machine timing will be off and it may be possible for the needle to collide with internal parts causing damage not covered by warranty.

Adjusting the Hopping Foot

The foot is adjusted at the factory and should not be moved without consulting the manufacturer.

Installing the Thread Mast

Locate the threaded hole on top of the machine near the rear by the hand wheel. The thread mast comes with the washer and nut on it. Remove the nut and washer, replace the nut onto the mast and then place the washer under the nut and onto the machine painted surface. The washer protects the painted surface when the nut is tightened. Tighten the mast clockwise until it is securely in place. Use the nut to secure the mast to the machine.

Note: The eyelets of the thread mast MUST be centered over the spool pins – so the cone will not pull, turn or tilt causing thread tension problems (see Photo 7).

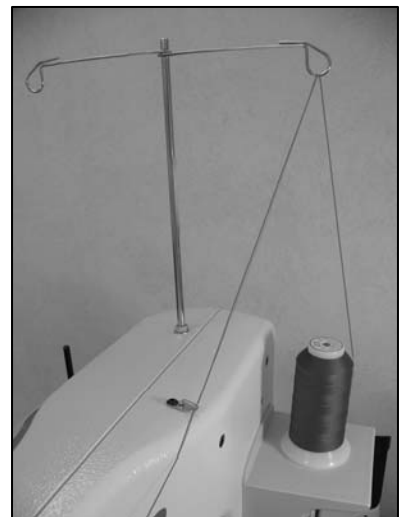


Photo 7

Installing the Laser Stylus

Begin by locating the laser stylus guide post, the laser holder and the laser stylus.

To attach the laser stylus to the top of the machine:

1. Locate the threaded hole on top of the machine near the front (see diagram B, #20). The laser stylus guide post comes with the washer and nut on it. Remove the nut and washer, replace the nut onto the post and then place the washer under the nut and onto the machine painted surface. The washer protects the painted surface when the nut is tightened. Tighten the post clockwise until it is securely in place. Use the nut to secure the post to the machine.

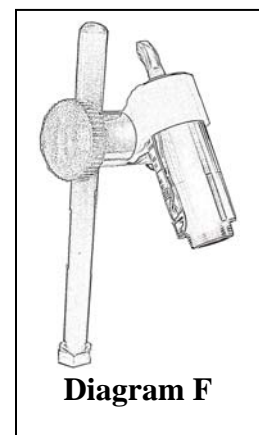


Diagram F

- Be sure the laser stylus is inserted into the laser clamp.
- Slide the laser clamp over the post to the desired height.
 - Plug the laser into the top port on the side of the front electronic control pod (see diagram C, #29).

To attach the laser stylus to the side of the machine:

- Place the nut on the laser stylus guide post with the washer under it and thread the laser guide post into the threaded hole at the front of the machine (see diagram A, #14), near the rear wheel base. Turn until securely in place. Lock in place with lock nut – the washer will be under the nut to protect the machine paint. (An unused spool pin can also be used to mount the laser—see Photo 8).

Follow steps 2-4 above



Photo 8

Laser Stylus Safety and Use Guidelines

Theory of Operation

The laser stylus projects a straight laser beam visible as a dot on surfaces it hits. The laser dot is used as a guide or stylus allowing you to stitch the same pattern onto a quilt that is being traced with the laser dot.

Laser Operation and Use

There is not a separate on/off switch for the laser. Power is supplied to the laser when it is plugged into the HQ Sixteen™. Be sure the laser is attached to the HQ Sixteen™ and pointed downward toward the table before connecting it to the port. Never point it in a direction that would project the beam into someone’s eyes. If the laser should cease to operate, check to ensure the plug is firmly seated into the HQ Sixteen™ laser port.

Caution: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Laser Focus/Laser Image Size

This high quality laser is focusable. The laser is focused by simply grasping the threaded housing surrounding the lens and turning clockwise or counter clockwise (see Photo 9). The laser image can be adjusted bigger or smaller. The direction of rotation needed is determined by the distance of the laser from the intended focal plane. Experiment by turning the threaded end to achieve your desired focal size.



Photo 9

Clamp Adjustment

The laser attaches to a mounting post. The post may be vertical or horizontal. The clamp is designed to articulate any direction by rotating the clamp on the post and pivoting the laser up or down. To make an adjustment, simply loosen the black thumbscrews, position, and retighten.

Location of Laser Labels

The label is attached to the case of the laser and contains an arrow which indicates the direction the laser light will shine when energized. The label must remain in place on the laser. Removal of the label will void the laser’s warranty.

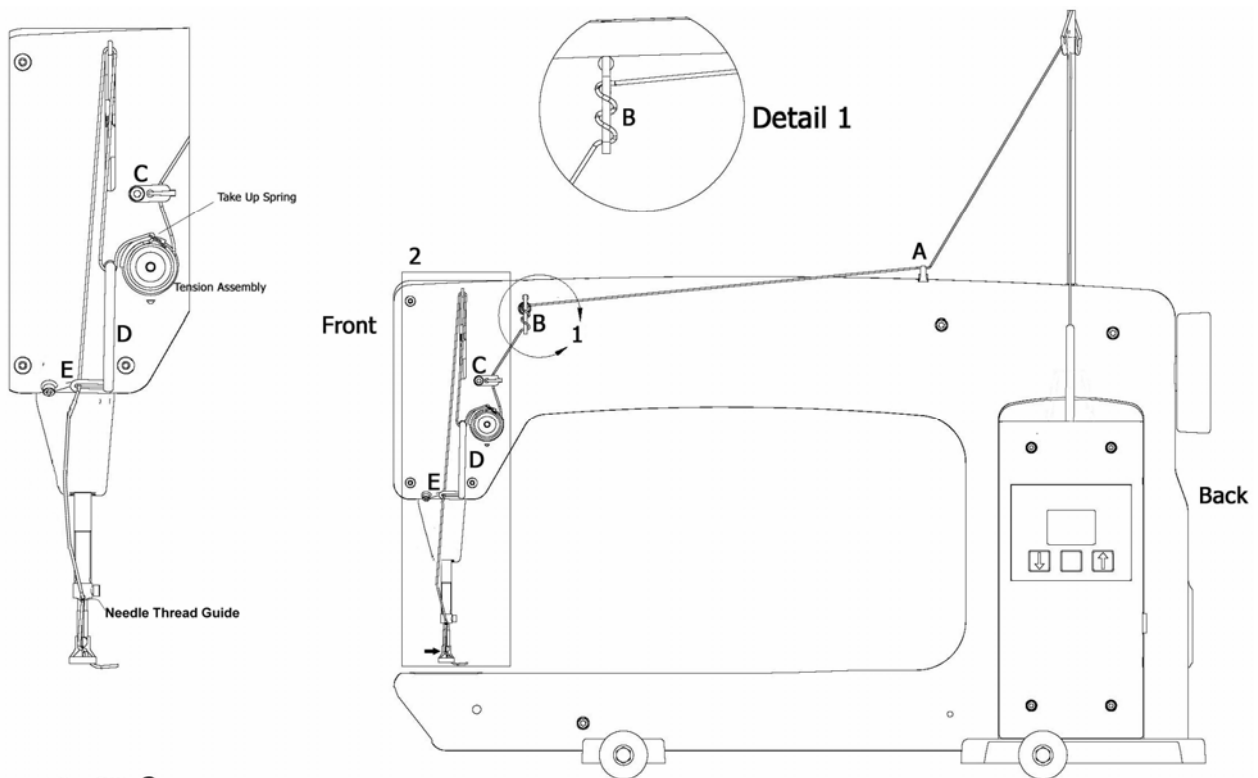
Threading the Machine

1. Place cone or spool of thread on spool pin. Pass the thread through **the thread mast** eyelet from back to front, continuing to thread guide **A**.
2. Continue to three-hole thread guide **B**. Wrap all three holes from back to front, handwheel side to needle side (see Detail 1 below).

Note: The purpose of this guide is to prevent loops of thread coming off the thread cone from going into the top tension as a knot causing thread breakage and bad tension. For most threads on a cone, it is important to thread all three holes for consistent results – should top thread tension need to be adjusted it should be done at the top tension assembly.

3. Thread continues through thread guide **C**, and then down to the **tension assembly** (see Detail 2 below).

NOTE: It is important that the thread is “flossed” up between the two tension discs. If the thread is not firmly in place between the two tension discs, the thread rests on the outside of the tension discs (without tension) and looping on fabric or thread nests may occur.



DETAIL 2
SCALE 1 : 1.5

Diagram G

4. Once the thread is in place, be sure that the thread catches on the **take up spring** and then pull it down under the stirrup (thread guide **D**).

5. Bring the thread back up through the **take up lever** from back to front, and then down through thread guide **E**.
6. Pull the thread down to the **needle thread guide** and thread through the hole.
7. Make sure the thread is following the groove down the front of the needle and **threads from front to back**. Be careful that the thread does not twist around the needle.

Note: To test that the machine is threaded correctly and the tension is correct, carefully pull the needle thread - taking care to not bend the needle. It should pull smoothly with light to medium tension.

Important notes: The HQ Sixteen™ quilting machine does not have a presser foot lever or top tension release like a home sewing machine. On a home sewing machine the top tension is released when the presser foot is raised allowing the thread to come freely out of the machine. When a home machine is threaded the tension discs are released and open for the thread to easily fall between the tension discs. This is not the case with the HQ Sixteen™ quilting machine where the top tension is always tight and the tension discs are never open. Therefore, the thread must be pulled up or “flossed” between the tension discs or it will stay outside the discs and float without tension, causing serious tension problems and or thread nests. It is also possible to bend the needle while it is threaded if care is not taken while moving the machine around the quilt because the top tension is never released.

Optional Horizontal Spool Holder

1. An optional horizontal spool holder is available for metallic and specialty threads wound on a spool (not a cone).
2. The horizontal spool holder mounts on the laser stylus guide post on the top of the machine (see Photo 10).
3. When using threads on the Horizontal Spool Holder, skip thread guide A. Thread the top hole only of the three-hole thread guide B, back to front.



Photo 10

Bobbin and Thread Tension Adjustments

Inserting the Bobbin

1. Place the bobbin in the bobbin case so that the thread pulls off clockwise when viewing the open side.
2. Slide the thread through the slot and under the tension spring leaving 5-6 inches of thread hanging loose.
3. Do not lift the lever on bobbin case. Fit the bobbin case onto the hook spindle in the machine. Rotate the casing until the open throat keys into the alignment notch in the middle of the hook. Push the casing in until it stops in place. Push inward until it clicks (see Photo 11).



Photo 11

Note: It is not suggested that the lever on the bobbin case be used for this installation. The latch lever should be used only for removal of the bobbin case.

4. Turn off the power switch while inserting the bobbin case or anytime the hands are near the needle area.

Drawing up the Bobbin Thread to the Top of the Quilt

1. After the machine is threaded, locate needle up/needle down button on the left handle. If the machine is used without handles for sit down use, press the heel of the foot pedal for needle down.
2. While firmly holding the tail of the needle thread, press the needle up/down button with free hand bringing the needle back to the up position. For sit down use, push the heel of the foot pedal to bring the needle back up.
3. Pull the machine 3-4 inches away while holding the needle thread.
4. Bobbin thread will pull up through to the top allowing you to grasp the loop and pull it to the desired length.

Bobbin Tension

The bobbin tension is the foundation tension for the entire machine. To test that bobbin tension is correct, hold the bobbin case in the palm of your hand with the open end facing up - wrap the thread around your index finger and while pulling up on the thread and wiggling the finger front to back (not up and down which is not consistent), the bobbin case should lift up on its side, but NOT lift out of your hand. If it will not lift up onto its side, it is too loose and if it lifts out of your hand, it is too tight. The small screw in the center of the tension spring is where the adjustment is made (see Photo 12). Turn clockwise to tighten and counterclockwise to loosen the bobbin case tension. Check your bobbin tension every time a new bobbin is inserted.

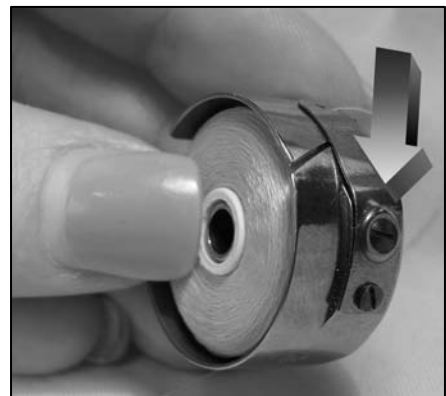


Photo 12

Top Tension

Puckering, gathers and thread breakage occur when the top tension is too tight. Loops and thread nests occur on the back when the top thread tension is too loose. Tension may need to be adjusted depending on the fabric, thread or batting you are using on each project.

Important: Top tension should be adjusted after the bobbin case foundation tension adjustment is made.

To adjust the top tension tighter, turn the tension knob clockwise. To loosen the tension, turn the tension knob counter-clockwise. If the bobbin case tension is adjusted a degree on the screw the top tension may need to be adjusted a ¼ to ½ turn to compensate or balance the tension.

Note: Before adjusting your top tension remember to floss or pull the top thread up into the tension discs or it will float outside the discs providing little or no top tension. This could cause significant tension or nesting problems on the bottom side of the quilt.

Consistently using the same thread will reduce your tension issues. If you use multiple brands, weights, types, colors, qualities, and mixes of threads, many tension variables will be created and more tension adjustments will be required. Dark threads will be heavier (because of dye) than light threads of the same weight, type and brand also affecting tension settings. The more consistent one is, the fewer variables will be involved.

Maintenance

Cleaning and Lubricating the Machine

Only use light sewing machine oil in the HQ Sixteen™. Internal oiling is not necessary on the HQ Sixteen™ except when the machine is taken to a service technician for routine maintenance and cleaning. **The bobbin basket assembly, however, needs regular lubricating.** Failure to keep the bobbin assembly lubricated can cause severe damage to the machine. To lubricate, turn off the machine. Clean around the bobbin assembly with a soft brush to remove lint.

Put a very small drop of oil on the hook in the bobbin assembly (see Photo 13). (Remove bobbin and case before oiling). The frequency depends upon the usage of the machine. Lubricating is recommended before running the machine if it has not been used regularly, or every other bobbin change if used frequently. After oiling, always sew a scrap piece as oil may cling to thread. Over oiling can cause excess dripping from the bobbin assembly. Lack of lubricant may be noticed by a change in the sound of the machine and will affect stitch quality.

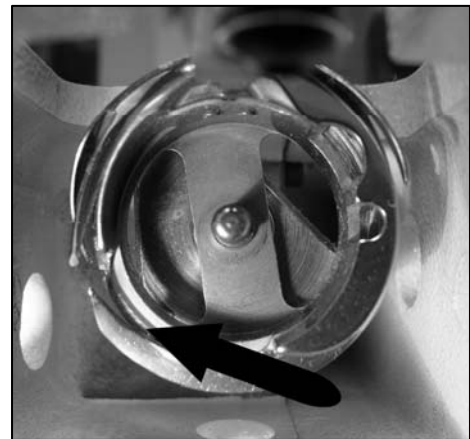


Photo 13



Using the Displays on the Handles and Side of Machine

Machine and Handlebar Menus

Note: Review the Handi Quilter “Welcome” DVD for interactive instruction on the HQ Sixteen™ menu functions.

The HQ Sixteen™ has a settings menu display on the front and rear mount handles as well as the front side pod. Settings may be changed at any one of these locations.

Use the Up ↑ or Down ↓ arrows and then press “**Select**” to access a submenu or to change a selection:

Selection Type	Function
Quilt Mode	<p>Manual Mode: Allows the user to manually operate the machine at a selected needle speed.</p> <p>Regulated: (See HQ Stitch Regulator Operation, page 17, for more information). Allows the user to select a specified stitch length and the machine regulates the motor speed. The machine will maintain an appropriate motor speed for the selected stitch length if the user moves the machine in a consistent manner.</p> <p>Note: Radical movements or changes in speed will defeat the regulator, causing irregular stitches. Moving the machine too fast or too slow will defeat the regulator feature, also causing irregular stitches.</p> <p>Stitches Per Inch: Allows the user to determine the stitch length desired. Can be set from 4-15 stitches per inch.</p> <p>Select: Press to accept user selection and return to the main menu.</p> 
Needle Up/Down	<p>Programs the needle to automatically return to the up or down position when stopped. Press Select to toggle between Needle Up and Needle Down.</p>
Stitch Half/Full	<p>Programs the needle to take a half or full stitch when Needle Up/Down button is pressed. Press Select to toggle between Stitch Half and Stitch Full.</p>
Lights On/Off/Spot/Part	<p>Lighting consists of multiple LED light clusters (bulbs) mounted on the underside of the handlebars. Twelve LED light clusters are included with the HQ Sixteen™. Up to eight additional light clusters can be purchased and inserted into expansion light ports.</p> <p>Press Select to toggle through four white LED lighting options.</p> <p>Lights on: Turns all bulbs on.</p> <p>Lights off: Turns all bulbs off.</p> <p>Lights spot: Engages spot lighting by turning on the bulbs set to “on” in the Light Mode menu (see <i>Light Mode</i> below). Spot lights are the four bulbs closest to the machine (two bulbs on each side of the handlebars). All other lights are turned off.</p> <p>Lights part: Engages partial lighting by turning on all bulbs except the spot lights. The four bulbs closest to the machine are turned off.</p> 
Diagnostic Mode	<p>Allows an authorized representative to run diagnostics on the HQ Sixteen™.</p>

Set Up

Alarm Mode: Allows the user to set overspeed alarm.

Overspeed: Alarm beeps to indicate that the machine is no longer sewing in regulation mode because the machine is being moved too fast. Press **Select** to toggle between Y (yes, alarm is on) or N (no, alarm is off).

Exit Menu: Press **Select** to return to the **Set Up** menu.



My Speed: Allows the user to select the needle speed at which the machine starts each time it is turned on in manual mode. Press the Up ↑ or Down ↓ to select your speed. Press **Select** to return to the **Set Up** menu.

Light Mode: Used to selectively turn on/off two LED light clusters (bulbs) nearest to the machine on each side of the handlebar.

Use the Up ↑ or Down ↓ arrows to point to the left rear, right rear, left front, or right front bulbs. The light positions on the menu screen correspond to the bulb position on the handlebar. Press **Select** to turn a bulb on/off. An asterisk indicates the bulb is on. The small circle indicates the bulb is off.

To return to the **Set Up** menu, press the Up ↑ or Down ↓ arrow points to **Exit** and press **Select**.



Counters: Counts the total number of stitches on the machine over the life of the machine and during a time period defined by the user.

L (Lifetime): Stitch count over the life of the machine. This count can not be reset.

T (Trip): Can be used to count the number of stitches in a project or over a specific time frame defined by the user. To reset the trip stitch count, use the Up ↑ or Down ↓ arrows to point to Reset and press **Select**.

To return to the **Set Up** menu, press the Up ↑ or Down ↓ arrow points to **Exit** and press **Select**.

Walking On/Off: Turns the walking stitch feature on/off. When the **Needle Up/Down** button on the handlebar is pressed and held, the machine will make slow stitches until the **Needle Up/Down** button is released. The walking stitch can be used to tie off stitches at the beginning and end of quilting, or to make a full stitch when half stitch is selected in the **Main Menu**.

Exit Menu: Press **Select** to exit setup and return to the main menu.

Using the Handle Buttons

The following functions take effect by pressing and then quickly releasing the button:

Selection Type	Function
Needle Up/Needle Down	Allows the user to manually move the needle one half stitch or one full stitch at a time. Half or full stitch is set by the user on the settings menu. Walking Stitch: The machine will make slow stitches when Needle Up/Down is pressed and held. Note: Walking must be set to On in the set up menu for this feature (see page 15).
Start/Stop	Starts and stops the machine.
Speed Up	By pushing the plus sign, the speed of the machine will gradually increase. The % of machine needle speed is displayed on the Menu bar ranging from 10-100%. (Manual mode only)
Speed Down	By pushing the minus sign, the speed of the machine will gradually decrease. The % of machine needle speed is displayed on the Menu bar ranging from 10-100%. (Manual mode only)

HQ STITCH REGULATOR OPERATION

To use regulation mode it must be selected from the **SETTINGS MENU**.

1. Scroll until you can see **QUILT MODE** from the **MENU** and press **SELECT** (Photo 14).
2. Choose **REGULATED** from the **QUILT MODE MENU** and press **SELECT**.
3. The menu prompts you to select the number of **STITCHES PER INCH** you desire (Photo 15). Select any number from 4 to 15 stitches per inch by pressing the up/down arrows (the larger the number, the smaller the stitch). Press **SELECT** to return to the main **MENU**.
4. The **DISPLAY** will now indicate on the first line that the machine is in **REGULATION MODE** and will display the **STITCHES PER INCH**.
5. From the front or rear handles, press **START** and begin moving the machine. The needle will immediately start stitching. As you move the machine, your stitches will be regulated to the length set in step 3. If you press **START** and don't move the machine, the needle will start stitching, but will stop after 3-4 stitches.



Photo 14



Photo 15

IMPORTANT NOTES

You can stop the machine at any time by pushing the **START/STOP** key. If you don't move the machine after 3 or 4 stitches, the machine will stop and position the needle.

It is important to not move the machine too fast since this will result in an **OVERSPEED CONDITION**, during which, the machine drops out of regulation until you slow your motions to below 100% of motor capacity. A beep will sound when your speed is over 100% unless the overspeed alarm is disabled. If you desire, the overspeed alarm can be disabled by selecting **SETUP** from the **MENU**, then choose **ALARM MODE**.

You can return to **MANUAL** mode from the **MENU** by scrolling to **QUILT MODE** and pushing **SELECT**. Choose **MANUAL MODE** and press **SELECT**.

To Begin Quilting

Thread Requirements

Threads have a tendency to dry or wet rot over a period of time. Be sure to choose high quality threads for your valuable heirloom quilts. Most machine quilting threads on the market today are acceptable.

Needle Requirements

For general quilting, a size 16/100 needle will accommodate most threads and fabrics.

Heavier threads, such as top stitch and some decorative threads, require a larger needle such as 18/110 or 20/120. Lofty batts and heavier fabrics such as denim, canvas or densely woven fabric may also require a larger needle.

To Prepare for Quilting

With any quilting machine, it is important to understand the basics of free motion quilting. The HQ Sixteen™ Quilting Machine does not have feed dogs like domestic machines; therefore, the fabric does not automatically feed under the hopping foot. The operator should synchronize the speed as well as the movement of the machine to get an even, consistent stitch.

In order to become comfortable with the free motion of the HQ Sixteen™, users can begin with a few “beginner” techniques.

In Manual Mode: Set the machine at a medium speed and begin moving it until you become accustomed to the resistance. By moving the machine faster, the stitches begin to elongate. The stitch speed can either be increased or the machine can be moved slower to get the stitches back to the desired length. By moving the machine slower, the stitches get shorter and can build up on top of each other, breaking the thread or making it extremely difficult to unpick. The stitch speed can be decreased, while maintaining a constant motion with the machine to bring the stitches back to the desired length.

In Stitch Regulator Mode: Set the machine to desired stitch length. Begin moving the machine to become accustomed to the resistance. The machine motor will slow down or speed up to maintain a consistent stitch length according to how quickly or slowly you move the machine. Moving the machine too fast or in radical or jerky movements will defeat the stitch regulator function.

When pressing START on the front or rear handle bars, make certain to begin moving the machine immediately. If the needle stitches in one place too long, the stitches build up on top of each other causing a build up of thread or thread breakage. When bringing the machine to a complete stop press the STOP button at the same moment the machine stops moving. If the machine is still moving when the STOP button is pressed, it can cause deflection in the needle, possibly causing it to bend or break.

When quilting, relax your hands and maintain a light touch on the handlebars. Gripping the handlebars too tightly may cause body tension resulting in poor quilting quality. The HQ Sixteen™, combined with any one of its home machine quilting frames will give you a smooth even glide.

Troubleshooting

Stitches are Skipping	Corrective Measure
<ul style="list-style-type: none"> ▶ The needle is damaged, dull, bent, or installed improperly ▶ Incorrect needle size ▶ The needle has not been positioned properly ▶ Fabric is too tight on the frame ▶ Thread tension too tight ▶ Improper threading 	<ul style="list-style-type: none"> ▶ Replace the needle often, normally once or twice per day for continuous quilting or at least once per quilt. Use HQ Sixteen™ recommended needles. ▶ Always change the needle if the needle has struck any hard object such as a straight pin, etc. The tip of the needle can become damaged or burred, resulting in fabric damage as well as skipped stitches, thread breakage or shredding. ▶ Always change the needle if it has been hit, bumped or pulled off center while maneuvering the machine about the quilt. A slightly bent needle can be a major cause of skipped stitches. ▶ Check for the proper size of needle for the work and thread being applied to the quilting operation. Some battings and fabrics used in quilting may constrict or impede the thread passing through the front groove of the needle. This diminishes the loop lift required for stitch formation. Typically, a larger needle will solve the problem; however, it has been found that certain smaller sizes of needles as well as the use of ball pointed needles solve some specific problems. ▶ Position the needle properly to the needle bar. Inspect the position of the needle to make sure the needle is at the 6 o'clock position (see Photo 16)—If you stand directly in front of the needle (facing the bobbin case side of the machine), you will see the entire needle eye directly facing you. This is 6 o'clock position. Make sure (1) the needle is installed all the way into the needle bar to the needle stop hole in the needle bar, (2) the long groove in the needle is toward the front (bobbin case side), and (3) the scarf/scooped out part of the needle is toward the handwheel. ▶ The needle can sometimes be rotated to 5 o'clock (slightly right) or 7 o'clock (slightly left) in order to adjust for a more positive thread loop pickup by the hook point. ▶ Loosen pole tension on the frame. Fabric that is rolled too tight causes the fibers to separate. This reduces the needle friction on the thread resulting in a smaller thread loop. ▶ Loosen top tension. Re-check top and bobbin tension (see pages 12-13). ▶ Inspect that the thread take-up lever, thread stirrup or tension spring are all threaded correctly.
<p>The Needle Breaks</p>	<p>Corrective Measure</p>
<ul style="list-style-type: none"> ▶ The needle is bent or not installed properly ▶ The needle hits the throat plate 	<ul style="list-style-type: none"> ▶ Replace or correctly change the needle. Make sure that the needle is pushed up into the needle bar clamp until it can go no farther (visually check that it is up to the top of the stop/sight hole above the needle bar clamp screw). Failure to do so can cause damage in the bobbin area and throat plate. ▶ Correctly position the needle, throat plate or hopping foot. Replace with a new needle.
<p>Stitches are Puckered</p>	<p>Corrective Measure</p>
<ul style="list-style-type: none"> ▶ The hopping foot applies too much pressure to the material ▶ The tension is not balanced ▶ Needle too large for material 	<ul style="list-style-type: none"> ▶ Decrease the pressure on the hopping foot by loosening the nut at the base of the hopping foot shaft. Adjust to the proper height. Note: When tightening the nut on the hopping foot shaft, be careful not to tighten so tight that it rotates the bar. ▶ Balance the tension of the needle thread after ensuring the bobbin tension is adjusted correctly (see page 12). ▶ Replace the needle with a size better suited for the fabric.
<p>Stitch Quality is Poor</p>	<p>Corrective Measure</p>
<ul style="list-style-type: none"> ▶ The tension is not balanced ▶ Bobbin case is damaged, corroded, dirty, etc ▶ Moving the machine too fast for needle speed selected 	<ul style="list-style-type: none"> ▶ Adjust the tension of the needle thread after ensuring the bobbin tension is adjusted correctly (see page 12). ▶ Since thread slides over the surface of the bobbin case at a high speed, make sure the case is free of any lint or foreign matter that could impede thread passage through the machine. ▶ Synchronize machine movement and needle speed to get roughly 8-10 stitches per inch. Elongated stitches are an indication of moving the machine too fast for the current speed.



Photo 16

Tension is Poor	Corrective Measure
<ul style="list-style-type: none"> ▶ “Fuzz” caught under the tension spring in the bobbin 	<ul style="list-style-type: none"> ▶ If using short staple threads, inexpensive or industrial threads or coated threads, lint and other material will build up under the tension leaf spring and begin to lift the spring, reducing the spring’s ability to compress against the thread. By inserting a needle under the spring and clearing out the lint, the bobbin tension will return fairly close to its preset tension.
Hand Wheel Won’t Rotate	Corrective Measure
<ul style="list-style-type: none"> ▶ Thread is entangled and caught in the hook 	<ul style="list-style-type: none"> ▶ Turn off the machine and unplug the machine from the electrical outlet. Lubricate the hook, strongly turn the hand wheel clockwise and if necessary counterclockwise several times, and then remove the thread caught in the hook.
Thread Nests Under Quilt	Corrective Measure
<ul style="list-style-type: none"> ▶ Not enough tension on top thread 	<ul style="list-style-type: none"> ▶ Check that the machine is threaded correctly. Make certain that the thread is flossed snugly in place between the two tension discs. If machine is threaded correctly, tighten top tension by rotating the tension knob clockwise.
<ul style="list-style-type: none"> ▶ Improper threading 	<ul style="list-style-type: none"> ▶ Refer to threading diagram and threading instructions (page 10).
Hard to Guide Machine	Corrective Measure
<ul style="list-style-type: none"> ▶ Carriage wheels not centered on track 	<ul style="list-style-type: none"> ▶ Center the carriage wheels on top of the continuous track. Check that the machine carriage has not “jumped” track. Slightly loosen wheel on one side to allow machine to more easily follow track alignment.
<ul style="list-style-type: none"> ▶ Thread caught in wheels 	<ul style="list-style-type: none"> ▶ Remove all thread or debris in wheels. Check that the tracks are free of lint and threads.
Motor Fails to Run	Corrective Measure
<ul style="list-style-type: none"> ▶ On/Off switch turned off 	<ul style="list-style-type: none"> ▶ Turn the machine on by using the switch on the back electrical control pod.
<ul style="list-style-type: none"> ▶ Machine not receiving power 	<ul style="list-style-type: none"> ▶ Check that the power connector is securely plugged into the back of the machine and the three-prong end is plugged into the power source.
Uneven Quilt Design	Corrective Measure
<ul style="list-style-type: none"> ▶ Take-up rollers may be bowed or bent 	<ul style="list-style-type: none"> ▶ Make certain the fabric is not rolled too tight, causing the poles to bow. Check that poles are inserted completely together with the push pin engaged so bowing won’t occur.
<ul style="list-style-type: none"> ▶ Leaders are stretched/worn 	<ul style="list-style-type: none"> ▶ If fabric is beginning to stretch or fray, contact Handi Quilter LLC for replacement leaders.
Needle Thread Breaks	Corrective Measure
<ul style="list-style-type: none"> ▶ Thread cones/spools are poor quality or may have severe twisting or thread rot 	<ul style="list-style-type: none"> ▶ Look for severe twisting of threads when approximately 12 to 15 inches has been pulled off, with the ends pinched together. Cotton threads are particularly susceptible to dry rot or wet rot which makes thread brittle. Do not use poor quality thread, or thread that is rotted or brittle.
<ul style="list-style-type: none"> ▶ Top and bobbin tensions not balanced 	<ul style="list-style-type: none"> ▶ Check thread tension in top and bobbin for proper balance. See pages 12-13.
<ul style="list-style-type: none"> ▶ The machine head has been threaded incorrectly or thread spools are not positioned correctly 	<ul style="list-style-type: none"> ▶ Check that the machine is threaded correctly. ▶ Inspect for accidental double wrapping of thread on thread guides. ▶ Inspect the thread mast, making sure the eyelets of the mast are directly over the spools. ▶ Inspect the vertical positioning of the thread cones. Tipped cones can dramatically affect thread tension and can cause breakage.
<ul style="list-style-type: none"> ▶ Particles in tension discs 	<ul style="list-style-type: none"> ▶ Inspect for particles and remove any fuzz or debris.
<ul style="list-style-type: none"> ▶ Bobbin rotation is not smooth 	<ul style="list-style-type: none"> ▶ Change the bobbin. The slightest hesitation of the bobbin rotation can be the cause of dramatic tension change and thread breakage.
<ul style="list-style-type: none"> ▶ Needle is burred, bent or dull, or installed incorrectly 	<ul style="list-style-type: none"> ▶ Change the needle at least once per quilt. Make sure the needle is installed to the top of the stop hole in the needle bar.
<ul style="list-style-type: none"> ▶ Needle not suited for thread 	<ul style="list-style-type: none"> ▶ Replace the needle to one better suited for the thread. Use the proper size needle.
<ul style="list-style-type: none"> ▶ Hesitating too long at one point in pattern 	<ul style="list-style-type: none"> ▶ Move more quickly so stitches don’t overlap or build up. When starting the machine, begin moving immediately. Sewing in one place too long will cause the thread to break.
<ul style="list-style-type: none"> ▶ Improper needle/hook relationship 	<ul style="list-style-type: none"> ▶ Timing of the machine is improper. Consult a repair technician.
<ul style="list-style-type: none"> ▶ Damage or “Burr” at needle hole of throat plate or other thread handling part 	<ul style="list-style-type: none"> ▶ If thread is shredding at the throat plate, check for burrs or jagged edges. Gently rub with metal cloth to remove the sharp edge. Consult a repair technician to polish any hard to reach or delicate areas, or if the burr is inside the throat.

<ul style="list-style-type: none"> ▶ Wrong type of needle ▶ Other possible problems 	<ul style="list-style-type: none"> ▶ Use needles recommended by Handi Quilter LLC. Using the wrong needle with a smaller shank diameter causes many problems. For example, a system 1738 or 287WH needle with a shank diameter of 1.64mm will fit loosely into the needle bar clamp. This condition allows the needles to fit into the clamp at an angle which may cause problems including skipped stitches and the needle positioned too far away from the hook point. • Needle too close to hook, causing friction and possible collision of hook point and needle (broken thread). • Needle plate damage • Hook damage • Broken needles or damaged needle bar clamp
Motor Stall	Corrective Measure
<ul style="list-style-type: none"> ▶ Motor Stall 	<ul style="list-style-type: none"> ▶ The alarm indicates the motor is not responding properly to the speed controls. This may be caused by a thread lock, mechanical obstruction or an electrical problem. ▶ Clear any thread from the bobbin area ONLY after turning off the power to the machine. ▶ Turn the handwheel and check for tightness. ▶ The motor stall may re-occur if it is caused by an electrical problem. Turn the machine off and then back on again to reset the computer

* If the troubleshooting above does not eliminate the problem, please consult an authorized HQ Sixteen™ representative.



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